Arkansas CTE

Collision Repair - Nonstructural Analysis/Repair: Grades 9, 10, 11, 12

Adopted 2014

Demonstrate appropriate safety procedures

1.1 Identify and demonstrate safe work practices.

1. Identify general shop safety rules and procedures. 1.1.1
2. Utilize safe procedures for handling of tools and equipment. 1.1.2
3. Identify and use proper placement of floor jacks and jack stands. 1.1.3
4. Identify and use proper procedures for safe lift operation. 1.1.4
5. Utilize proper ventilation procedures for working within the lab/shop area. 1.1.5
6. Identify marked safety areas. 1.1.6
7. Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment. 1.1.7

1.2 Practice personal safety in work areas.

1. Identify the location and use of eye wash stations. 1.2.1
2. Identify the location of the posted evacuation routes. 1.2.2
3. Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities. 1.2.3
4. Identify and wear appropriate clothing for lab/shop activities. 1.2.4
5. Secure hair and jewelry for lab/shop activities. 1.2.5
6. Demonstrate awareness of the safety aspects of supplemental restraint systems (SRS), electronic brake control systems, and hybrid vehicle high voltage circuits. 1.2.6
7. Demonstrate awareness of the safety aspects of high voltage circuits (such as high intensity discharge (HID) lamps, ignition systems, injection systems, etc.). 1.2.7
8. Locate and demonstrate knowledge of safety data sheets (SDS). 1.2.8

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Demonstrate safe usage of tools and equipment

2.1 Demonstrate knowledge of shop tools and equipment.

1. Identify tools and their usage in automotive applications. 2.1.1
2. Identify standard and metric designation. 2.1.2
3. Demonstrate safe handling and use of appropriate tools. 2.1.3
4. Demonstrate proper cleaning, storage, and maintenance of tools and equipment. 2.1.4

Practice employability/leadership skills

3.1 Demonstrate employability skills.

1. Demonstrate a good work ethic (i.e., relations with other, dependability, attitude, and personal hygiene). 3.1.1
2. Demonstrate teamwork. 3.1.2
3. Demonstrate job-seeking techniques (i.e., write a resume, search for a job, arrange references, and apply interview techniques) 3.1.3
4. Describe legal issues of sexual harassment in the workplace. 3.1.4
5. Identify employment eligibility requirements (e.g. valid driver's license, background check etc.) 3.1.5

3.2 Demonstrate leadership skills.

1. Perform basic parliamentary procedures in a group meeting. 3.2.1
2. Demonstrate an understanding of one's personal values, interpersonal skills, etiquette, effectiveness in oral and written communication and courtesy. Develop and maintain a code of professional ethics. 3.2.2
3. Maintain a good professional appearance. 3.2.3
4. Perform basic tasks related to securing and terminating employees. 3.2.4

Demonstrate repair procedures of body components

4.1 Demonstrate damage analysis preparation procedures.

1. Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan. 4.1.1
2. Inspect, remove, store, and replace exterior and interior trim and moldings, body panels and components that may interfere with or be damaged during repair and vehicle mechanical and electrical components that may interfere with or be damaged during repair. 4.1.2
3. Protect panels, glass, interior parts, and other vehicles adjacent to the repair area. 4.1.3
4. Soap and water wash entire vehicle for inspection. 4.1.4
5. Prepare damaged area using water-based and solvent-based cleaners. 4.1.5
6. Remove corrosion protection, undercoating's, sealers, and other protective coatings as necessary to perform repairs. 4.1.6

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4.2 Demonstrate outer body panel repairs, replacements, and adjustment procedures.

1. Determine the extent of direct (primary) and indirect (secondary) damage and direction of impact; develop and document a repair plan. 4.2.1
2. Inspect, remove and replace bolted, bonded, and welded steel panel or panel assemblies. 4.2.2
3. Determine the extent of damage to aluminum body panels; repair or replace. 4.2.3
4. Inspect, remove, replace, and align hood, hood hinges, and hood latch, deck lid, lid hinges, and lid latch, doors, latches, hinges, and related hardware, tailgates, hatches, lift gates and sliding doors, bumper bars, covers, reinforcement, guards, isolators, and mounting hardware, fenders, and related panels. 4.2.4
5. Straighten contours of damaged panels to a suitable condition for body filling or metal finishing using power tools, hand tools, and weld-on pulling attachments. 4.2.5
6. Weld damaged or torn steel body panels; repair broken welds. 4.2.6
7. Restore corrosion protection. 4.2.7
8. Replace door skins. 4.2.8
9. Restore sound deadeners and foam materials. 4.2.9
10. Perform panel bonding. 4.2.10
11. Diagnose and repair water leaks, dust leaks, and wind noise. 4.2.11
12. Identify one-time fasteners. 4.2.12

4.3 Demonstrate metal finishing and body filling repair procedures.

1. Remove paint from the damaged area of a body panel. 4.3.1
2. Locate and repair surface irregularities on a damaged body panel. 4.3.2
3. Demonstrate hammer and dolly techniques. 4.3.3
4. Heat shrink stretched panel areas to proper contour. 4.3.4
5. Cold shrink stretched panel areas to proper contour. 4.3.5
6. Mix and apply body filler. 4.3.6
7. Identify different types of body fillers. 4.3.7
8. Rough sand body filler to contour; finish sand. 4.3.8
9. Determine the proper metal finishing techniques for aluminum. 4.3.9
10. Determine proper application of body filler to aluminum. 4.3.10

4.4 Demonstrate moveable glass and hardware repair procedures.

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1. Inspect, adjust, repair or replace window regulators, run channels, glass, power mechanisms, and related controls. 4.4.1
2. Inspect, adjust, repair, remove, reinstall or replace weather-stripping. 4.4.2

3. Inspect, repair or replace, and adjust removable power operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs. 4.4.3
4. Inspect, remove, reinstall, and align convertible top and related mechanisms. 4.4.4
5. Initialize electrical components as needed. 4.4.5

4.5 Demonstrate the use of plastics and adhesives for body repair.

1. Identify the types of plastics; determine repairability. 4.5.1
2. Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair. 4.5.2
3. Clean and prepare the surface of plastic parts; identify the types of plastic repair procedures. 4.5.3
4. Repair rigid, semi-rigid, or flexible plastic panels. 4.5.4
5. Remove or repair damaged areas from rigid exterior composite panels. 4.5.5
6. Replace bonded rigid exterior composite body panels; straighten or align panel supports. 4.5.6

Preparing vehicle for service/customer

5.1 Prepare vehicle for service as listed on the work order.

1. Identify information needed and the service requested on a repair order. 5.1.1
2. Identify purpose and demonstrate proper use of fender covers, mats. 5.1.2
3. Demonstrate use of the three C's (concern, cause, and correction). 5.1.3
4. Review vehicle service history. 5.1.4
5. Complete work order to include customer information, vehicle identifying information, customer concerns, related service history, cause, and correction. 5.1.5

5.2 Prepare vehicle for customer.

1. Ensure vehicle is prepared to return to customer per school or company policy (floor mats, steering wheel cover, etc.). 5.2.1